5.6 Air Quality

5.6 AIR QUALITY

This section addresses the air emissions generated by the construction and operation of the proposed project, and the potential impacts to air quality. The analysis also addresses the consistency of the proposed project with the air quality policies set forth within the South Coast Air Quality Management District's (SCAQMD) *2007 Air Quality Management Plan for the South Coast Air Basin*. The analysis of project-generated air emissions focuses on whether the proposed project would cause an exceedance of an ambient air quality standard or SCAQMD significance threshold. Air quality technical data is included as Appendix 11.6, *Air Quality/Greenhouse Gas Emissions Data*.

5.6.1 EXISTING SETTING

SOUTH COAST AIR BASIN

Geography

The City is located in the South Coast Air Basin (Basin), a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area of Riverside County.

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of air pollutants throughout the Basin.

Climate

The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The climate consists of a semiarid environment with mild winters, warm summers, moderate temperatures, and comfortable humidity. Precipitation is limited to a few winter storms. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The average annual temperature varies little throughout the Basin, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the Basin show greater variability in annual minimum and maximum temperatures. All portions of the Basin have recorded temperatures over 100°F in recent years.

Although the Basin has a semi-arid climate, the air near the surface is moist due to the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the Basin. Precipitation in the Basin is typically 9 to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the Basin.

The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone (O_3) observed during summer months in the Basin. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

The area in which the project is located offers clear skies and sunshine, yet is still susceptible to air inversions. These inversions trap a layer of stagnant air near the ground, where it is then further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

LOCAL AMBIENT AIR QUALITY

Air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Basin. Estimates for the Basin have been made for existing emissions.[1] The data indicate that on-road (e.g., automobiles, buses, and trucks) and off-road mobile sources (e.g., trains, ships, and construction equipment) are the major source of current emissions in the Basin. Mobile sources account for approximately 64 percent of volatile organic compounds (VOC) emissions, 92 percent of nitrogen oxides (NO_X) emissions, 39 percent of direct particulate matter smaller than 2.5 microns ($PM_{2.5}$) emissions, 59 percent of sulfur oxides (SO_X) emissions, and 98 percent of carbon monoxide (CO) emissions. Area sources (e.g., architectural coatings, residential water heaters, and consumer products) account for approximately 30 percent of VOC emissions and 32 percent of direct $PM_{2.5}$ emissions. Point sources (e.g., chemical manufacturing, petroleum production, and electric utilities) account for approximately 38 percent of SO_X emissions. Entrained road dust accounts for approximately 20 percent of direct $PM_{2.5}$ emissions.

The SCAQMD has divided its jurisdiction into 38 source receptor areas (SRA) with a designated ambient air monitoring station in most areas. The project is located in the North Coastal Orange County SRA (SRA 18). The monitoring station representative of this area is the Costa Mesa station, which is located approximately 11.75 miles southeast of the project site and also located within SRA 18. The air pollutants measured at the Costa Mesa station site include O_3, CO, nitrogen dioxide (NO_2), and Sulfur dioxide (SO_2). Particulates (PM_{10} and $PM_{2.5}$) are not measured at the Costa Mesa site. The nearest station to the project site measuring particulates is the South Long Beach station, which is located approximately 4.65 miles northwest of the project site (within SRA 4). The air quality data monitored at the Costa Mesa and South Long Beach stations from 2008 to 2010 are presented in Table 5.6-1, *Measured Air Quality Levels*.

[1] South Coast Air Quality Management District, *2007 Air Quality Management Plan for the South Coast Air Basin*, June 2007.

Table 5.6-1
Measured Air Quality Levels

Pollutant	Primary Standard		Year	Maximum Concentration[1]	Number of Days State/Federal Std. Exceeded
	California	Federal			
Carbon Monoxide (CO) [2] (8-Hour)	9.0 ppm for 8 hours	9.0 ppm for 8 hours	2008 2009 2010	1.97 ppm 2.16 2.09	0/0 0/0 0/0
Carbon Monoxide (CO) [2] (1-Hour)	20 ppm for 1 hour	35 ppm for 1 hour	2008 2009 2010	3.00 ppm 2.70 2.44	0/0 0/0 0/0
Ozone (O_3) [2] (1-Hour)	0.09 ppm for 1 hour	N/A	2008 2009 2010	0.094 ppm 0.087 0.097	0/0 0/0 1/0
Ozone (O_3) [2] (8-Hour)	0.07ppm for 8 hours	0.075 ppm for 8 hours	2008 2009 2010	0.080 ppm 0.072 0.076	5/3 3/0 2/1
Nitrogen Dioxide (NO_x) [2]	0.18 ppm for 1 hour	0.100 ppm	2008 2009 2010	0.081 ppm 0.065 0.070	0/NA 0/NA 0/NA
Sulfur Dioxide (SO_X) [2]	0.25 ppm for 1 hour	0.14 ppm for 24 hours or 0.03 ppm annual arithmetic mean	2008 2009 2010	0.003 ppm 0.004 0.002	N/A N/A N/A
Particulate Matter (PM_{10}) [3, 4, 5]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours	2008 2009 2010	81.0 µg/m^3 83.0 76.0	9/0 5/0 */0
Fine Particulate Matter ($PM_{2.5}$) [3,5]	No Separate State Standard	35 µg/m^3 for 24 hours	2008 2009 2010	60.9 µg/m^3 55.8 33.7	NM/7 NM/4 NM/0

ppm = parts per million; PM_{10} = particulate matter 10 microns in diameter or less; * = insufficient (or no) data available
µg/m^3 = micrograms per cubic meter; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
NM = Not Measured; NA = Not Applicable

Notes:
1. Maximum concentration is measured over the same period as the California Standard.
2. Measurements taken at the Costa Mesa Monitoring Station located at 2850 Mesa Verde Drive East, Costa Mesa, California 92626.
3. Measurements taken at the South Long Beach Monitoring Station located at 1305 East Pacific Coast Highway, Long Beach, California 90806.
4. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
5. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

Source: California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/welcome.html.

Carbon Monoxide. Carbon monoxide (CO) is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions.

CO replaces oxygen in the body's red blood cells. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes are most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of carbon monoxide. Exposure to high levels of carbon monoxide can slow reflexes and cause drowsiness, and result in death in confined spaces at very high concentrations.

Ozone. Ozone (O_3) occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is a photochemical pollutant, and needs volatile organic compounds (VOCs), NO_X, and sunlight to form; therefore, VOCs and NO_X are ozone precursors. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and a period of several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While ozone in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone (in the troposphere) can adversely affect the human respiratory system and other tissues. Ozone is a strong irritant that can constrict the airways, forcing the respiratory system to work hard to deliver oxygen. Individuals exercising outdoors, children, and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of ozone. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in aggravated respiratory diseases such as emphysema, bronchitis and asthma, shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue, as well as chest pain, dry throat, headache, and nausea.

Nitrogen Dioxide. Nitrogen oxides (NO_X) are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_2 can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter (PM_{10}). PM_{10} refers to suspended particulate matter, which is smaller than 10 microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003, the California Air Resources Board (CARB) adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25).

Fine Particulate Matter ($PM_{2.5}$). Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the United States Environmental Protection Agency (EPA) announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the United States Supreme Court reversed this decision and upheld the EPA's new standards.

On January 5, 2005, the EPA published a Final Rule in the Federal Register that designates the Basin as a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

Sulfur Dioxide. SO_2 is a colorless, irritating gas with a rotten egg smell; it is formed primarily by the combustion of sulfur-containing fossil fuels. Sulfur dioxide is often used interchangeably with SO_X and lead (Pb). Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics.

SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. The following types of people are most likely to be adversely affected by air pollution, as identified by CARB: children under 14, elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Locations that may contain a high concentration of these sensitive population groups are called sensitive receptors and include residential areas, hospitals, day-care facilities, elder-care facilities, elementary schools, and parks.

Sensitive uses within the immediate project area include residential uses to the north (across Marina Drive) and east (across 1st Street), and Marina Center and Park to the northeast of the project site (across the Marina Drive/1st Street intersection).

5.6.2 REGULATORY SETTING

U.S. ENVIRONMENTAL PROTECTION AGENCY

The EPA is responsible for implementing the Federal Clean Air Act (FCAA), which was first enacted in 1955 and amended numerous times after. The FCAA established Federal air quality standards known as the National Ambient Air Quality Standards (NAAQS). These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are O_3, CO, NO_2, which is a form of NO_X,

SO_2, which is a form of SO_x, PM_{10}, $PM_{2.5}$, and lead (Pb); refer to Table 5.6-2, *National and California Ambient Air Quality Standards*.

CALIFORNIA AIR RESOURCES BOARD

CARB administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 5.6-2, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMP's also serve as the basis for preparation of the State Implementation Plan (SIP) for the State of California.

Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data show that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard, and are not used as a basis for designating areas as nonattainment.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

The SCAQMD is one of 35 air quality management districts that have prepared AQMPs to accomplish a five-percent annual reduction in emissions. The *2007 Air Quality Management Plan for the South Coast Air Basin* (2007 AQMP) relies on a multi-level partnership of governmental agencies at the Federal, State, regional, and local level. The 2007 AQMP proposes policies and measures to achieve Federal and State standards for improved air quality in the Basin and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under SCAQMD jurisdiction. The 2007 AQMP includes new information on key elements such as:

- Current air quality;
- Improved emission inventories, especially significant increases in mobile source emissions;
- An overall control strategy comprised of: Stationary and Mobile Source Control Measures, SCAQMD, State and Federal Stationary and Mobile Source Control Measures, and the Southern California Association of Governments Regional Transportation Strategy and Control Measures;
- New attainment demonstration for $PM_{2.5}$ and O_3;
- Milestones to the Federal Reasonable Further Progress Plan; and
- Preliminary motor vehicle emission budgets for transportation conformity purposes.

Table 5.6-2
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	Nonattainment	N/A[5]	N/A[5]
	8 Hour	0.070 ppm (137 μg/m³)	Unclassified	0.075 ppm (147 μg/m³)	Nonattainment
Particulate Matter (PM_{10})	24 Hour	50 μg/m³	Nonattainment	150 μg/m³	Nonattainment
	Annual Arithmetic Mean	20 μg/m³	Nonattainment	N/A[7]	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 μg/m³	Unclassified
	Annual Arithmetic Mean	12 μg/m³	Nonattainment	15.0 μg/m³	Nonattainment
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m³)	Attainment	9 ppm (10 mg/m³)	Attainment
	1 Hour	20 ppm (23 mg/m³)	Attainment	35 ppm (40 mg/m³)	Attainment
Nitrogen Dioxide (NO_2)[6]	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	N/A	53 ppb (100 μg/m³)	Attainment
	1 Hour	0.18 ppm (339 μg/m³)	Attainment	100 ppb (188 μg/m³)	N/A
Lead (Pb)	30 day average	1.5 μg/m³	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 μg/m³	Attainment
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 μg/m³)	Attainment	N/A	Attainment
	3 Hour	N/A	N/A	N/A	Attainment
	1 Hour	0.25 ppm (655 μg/m³)	Attainment	75 ppb (196 μg/m³)	N/A
Visibility-Reducing Particles	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	No Federal Standards	
Sulfates	24 Hour	25 μg/m3	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m3)	Unclassified		

μg/m³ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable.

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter-PM_{10} and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. In 1990, CARB identified vinyl chloride as a toxic air contaminant, but determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010 ppm ambient concentration specified in the 1978 standard.
2. National standards (other than ozone, particulate matter and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. EPA also may designate an area as *attainment/unclassifiable*, if: (1) it has monitored air quality data that show that the area has not violated the ozone standard over a three-year period; or (2) there is not enough information to determine the air quality in the area. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over the three years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. The Federal 1-hour ozone standard was revoked on June 15, 2005 in all areas except the 14 8-hour ozone nonattainment Early Action Compact (EAC) areas.
6. The Nitrogen Dioxide ambient air quality standard was amended in February 22, 2007 to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm.
7. The EPA revoked the annual PM_{10} standard in 2006 (effective December 16, 2006).

Source: California Air Resources Board and U.S. Environmental Protection Agency, September 8, 2010.

5.6.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

REGIONAL AIR QUALITY

In its *CEQA Air Quality Handbook* (November 1993), the SCAQMD has established significance thresholds to assess the impact of project related air pollutant emissions. Table 5.6-3, *SCAQMD Regional Pollutant Emission Thresholds of Significance*, presents these significance thresholds. There are separate thresholds for short-term construction and long-term operational emissions. A project with daily emission rates below these thresholds is considered to have a less than significant effect on regional air quality. The SCAQMD is in the process of updating the thresholds.

Table 5.6-3
SCAQMD Regional Pollutant Emission Thresholds of Significance

Phase	Pollutant (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction	75	100	550	150	150	55
Operation	55	55	550	150	150	55
CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns						
Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993.						

LOCAL AIR QUALITY

As part of the SCAQMD's environmental justice program, attention was focused on localized effects of air quality. In accordance with Governing Board direction, SCAQMD staff developed localized significance threshold (LST) methodology and mass rate look-up tables by SRA that can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each SRA. The LST methodology is described in *Final Localized Significance Threshold Methodology* (updated July 2008) by the SCAQMD and is available at the SCAQMD website.[2] The SCAQMD periodically updates the lookup tables to reflect current monitoring data, with the last update occurring on October 21, 2009.

The LST mass rate look-up tables provided by the SCAQMD allow one to determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts. If the calculated on-site emissions for the proposed construction or operational activities are below the LST emission levels found on the LST mass rate look-up table, then the proposed construction or operation activity would not result in a significant impact on local air quality.

[2] South Coast Air Quality Management District, Localized Significance Thresholds, October 21, 2009. http://aqmd.gov/ceqa/handbook/LST/LST.html.

The LST mass rate look-up tables are applicable to NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs are derived based on the location of the activity (i.e., the source/receptor area); the emission rates of NO_X, CO, PM_{10}, and $PM_{2.5}$; and the distance to the nearest exposed individual. This distance is based upon the uses around the project and the Ambient Air Quality Standard (AAQS) averaging times for the pollutants of concern. The shortest AAQS averaging time for CO and NO_2 are for one-hour and the nearest exposed individual is the location where a person could be expected to remain for 1-hour. The shortest averaging time for the PM_{10} and $PM_{2.5}$ AAQS is 24 hours and the nearest exposed individual is the location where a person could be expected to remain for 24-hours. Typically, this is the nearest residential use.

The LST methodology presents mass emission rates for each SRA, project sizes of 1, 2, and 5 acres, and nearest receptor distances of 25, 50, 100, 200, and 500 meters. For project sizes between the values given, or with receptors at distances between the given distances, the methodology uses linear interpolation to determine the thresholds. If receptors are within 25 meters of the site, the methodology document says that the threshold for the 25-meter distance should be used.

The project is located in SRA 18 (North Coastal Orange County). The nearest off-site location where a person could be for 1-hour is adjacent to the site (residential uses across Marina Drive and 1st Street, approximately 85 feet and 60 feet, respectively, from the project site boundaries). Per SCAQMD guidance the receptor distance of 25 meters was utilized, as this is the shortest distance the methodology allows. The nearest off-site location where a person could be for 24-hours is the same as that for 1-hour. Based on these factors, the LST thresholds specific for the proposed project were calculated and are presented in Table 5.6-4, *Localized Significance Thresholds*. A project with daily emission rates below these thresholds is considered to have a less than significant effect on local air quality.

Table 5.6-4
Localized Significance Thresholds

Phase	Localized Significance Threshold (lbs/day)			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Construction	1,711	197	14	9
Operation	197	1,711	4	2

CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns

In addition, the project would result in a local air quality impact if the project results in increased traffic volumes and/or decreases in Level of Service (LOS) that would result in an exceedance of the CO ambient air quality standards of 20 ppm for 1-hour CO concentration levels, and 9 ppm for 8-hour CO concentration levels. If the CO concentrations at potentially impacted intersections with the project are lower than the standards, then there is no significant impact. If future CO concentrations with the project are above the standard, then the project would have a significant local air quality impact.

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by Appendix G of the *CEQA Guidelines*, as amended, and used by the City of Seal Beach in its environmental review process. The Initial Study Checklist includes questions relating to air quality. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant adverse environmental impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (refer to Impact Statement AQ-3).

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation (refer to Impact Statement AQ-1 and AQ-2).

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors) (refer to Impact Statement AQ-1 and AQ-2).

- Expose sensitive receptors to substantial pollutant concentrations (refer to Impact Statement AQ-1 and AQ-2).

- Create objectionable odors affecting a substantial number of people (refer to Section 8.0, *Effects Fount Not To Be Significant*).

5.6.4 IMPACTS AND MITIGATION MEASURES

SHORT-TERM (CONSTRUCTION) AIR EMISSIONS

AQ-1 SHORT-TERM CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROPOSED PROJECT COULD RESULT IN AIR POLLUTANT EMISSION IMPACTS OR EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS.

Impact Analysis: Short-term air quality impacts are predicted to occur during grading and construction operations associated with implementation of the proposed project. Temporary air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from grading and building construction; and
- Exhaust emissions from the construction equipment and the motor vehicles of the construction crew.

The project site consists of vacant disturbed land, with the exception of one residential structure located within the northwestern portion of the site. The project proposes amendments to the 1996 DWP Specific Plan that would allow for the development of 48 residential lots through implementation of Tentative Tract Map No. 17425 and the park/open space area. The project is anticipated to begin construction in 2012 and occur over approximately three years. Construction in 2012 would consist of demolition, site clearing and grading, and paving necessary for installing the proposed passive park space, the building pads, and the backbone infrastructure required for the

implementation of Tentative Tract Map No. 17425. It was conservatively assumed that 24 homes would be constructed and painted in 2013 and 24 homes in 2014.

The demolition phase would consist of demolishing the existing residence in the northwestern portion of the project site. Site grading would disturb approximately 10.9 acres (entire project site); grading activities would require approximately 10,000 cubic yards of imported soil to balance the northern 4.5 acres of the project site. Project construction would require excavators, a concrete/industrial saw, and tractors during demolition; graders, scrapers, excavators, dozers, tractors, and water trucks during grading; pavers, rollers, and paving equipment during paving; cranes, tractors, and forklifts during building construction; and air compressors during architectural coating (CalEEMod default equipment types and quantities). Emissions for each construction phase have been quantified based upon the phase durations and equipment types. The analysis of daily construction emissions has been prepared utilizing the CalEEMod computer model. Refer to Appendix 11.6, *Air Quality/Greenhouse Gas Emissions Data*, for the CalEEMod modeling outputs and results. Table 5.6-5, *Short-Term (Construction) Emissions*, presents the anticipated daily short-term construction emissions.

Table 5.6-5
Short-Term (Construction) Emissions

Emissions Source	Emissions (pounds per day)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2012 – Demolition, Grading, Paving, Park Construction						
Construction Emissions	11.08	94.45	49.91	0.10	40.04	7.63
Mitigated Emissions[2,3]	11.08	94.45	49.91	0.10	28.82	5.73
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded After Mitigation?	*No*	*No*	*No*	*No*	*No*	*No*
2013 – Building Construction and Architectural Coating – 24 homes						
Construction Emissions	11.62	26.72	19.46	0.03	2.06	1.89
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded After Mitigation?	*No*	*No*	*No*	*No*	*No*	*No*
2014 – Building Construction and Architectural Coating – 24 homes						
Construction Emissions	11.18	24.95	19.01	0.03	1.88	1.71
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded After Mitigation?	*No*	*No*	*No*	*No*	*No*	*No*

Notes:
1. Emissions calculated using the CalEEMod model.
2. The reduction/credits for construction emission mitigations are based on reduction measures included in the CalEEMod model, as recommended by the SCAQMD.
3. The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as typically required by the SCAQMD (Rule 403 and Rule 1113). The mitigation includes the following: replace ground cover on disturbed areas quickly, water exposed surfaces twice daily, proper loading/unloading of mobile and other construction equipment, and the use of low ROG coatings.

Refer to Appendix 11.6, *Air Quality/Greenhouse Gas Emissions Data*, for assumptions used in this analysis, including quantified emissions reduction by mitigation measures.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust (PM_{10} and $PM_{2.5}$) emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to

those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways (including demolition as well as construction activities). Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from demolition, grading, and construction is expected to be short-term and would cease upon project completion. Additionally, most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} (particulate matter smaller than 10 microns) generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants. Fine Particulate Matter ($PM_{2.5}$) is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. $PM_{2.5}$ is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and SO_X combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

Although unmitigated PM_{10} and $PM_{2.5}$ concentrations are below the SCAQMD thresholds, Mitigation Measures AQ-1 and AQ-2 would implement dust control techniques (i.e., daily watering), limitations on construction hours, and adherence to SCAQMD Rules 402 and 403 (which require watering of inactive and perimeter areas, track out requirements, etc.), to further reduce PM_{10} and $PM_{2.5}$ emissions during grading, as the Basin is in nonattainment for particulates. According to the modeling results in Table 5.6-5, total mitigated PM_{10} and $PM_{2.5}$ emissions in 2012 (year with the highest construction emissions) would be 28.82 pounds per day (lbs/day) and 5.73 lbs/day, respectively. Particulate matter emissions for all other construction years are below those of 2012. As a result, particulate matter emissions would not exceed SCAQMD thresholds and impacts would be less than significant.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the SCAQMD, the ROG emissions associated with paving have been quantified with the CalEEMod model. In addition, based upon the size of the buildings, architectural coatings were also quantified within the CalEEMod model.

The highest concentration of ROG emissions would be generated during the application of architectural coatings on the buildings. As required by law, all architectural coatings for the proposed project structures would comply with SCAQMD Regulation XI, Rule 1113 – *Architectural Coating*.[3] Rule 1113 provides specifications on painting practices as well as regulates the ROG content of paint. As shown in Table 5.6-5, project construction would not result in an exceedance

[3] South Coast Air Quality Management District, http://www.aqmd.gov/rules/reg/reg11_tofc.html, accessed on June 2, 2009.

of ROG emissions during any years of construction. Therefore, impacts would be less than significant.

Naturally Occurring Asbestos

Pursuant to guidance issued by the Governor's Office of Planning and Research, State Clearinghouse, Lead Agencies are encouraged to analyze potential impacts related to naturally occurring asbestos. Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (August 2000), the project site is not located in an area where naturally occurring asbestos is likely to be present (i.e., containing naturally occurring serpentinite and ultramafic rocks). Therefore, impacts are less than significant in this regard.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to and from the site. Emitted pollutants would include ROG, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. Standard SCAQMD regulations, such as maintaining all construction equipment in proper tune, shutting down equipment when not in use for extended periods of time, and implementing SCAQMD Rule 403 would be adhered to. As noted within Table 5.6-5, construction equipment exhaust would not exceed SCAQMD thresholds. Therefore, impacts are less than significant in this regard.

Total Daily Construction Emissions

In accordance with the SCAQMD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Construction would occur over a six years, with the greatest emissions being generated during the first year of construction. Additionally, the greatest amount of ROG emissions would occur during the last five years of development due to the application of architectural coatings.

The CalEEMod model allows the user to input mitigation measures such as watering the construction area to limit fugitive dust and applying soil stabilizers to the project area. Mitigation measures inputted within the CalEEMod model allow for certain reduction credits and result in a decrease of pollutant emissions. Reduction credits are based upon studies developed by CARB, SCAQMD, and other air quality management district's throughout California, and were programmed within the CalEEMod model. As indicated in Table 5.6-5, the CalEEMod model calculates the reduction associated with recommended mitigation measures.

As indicated in Table 5.6-5, impacts would be less than significant for all criteria pollutants emitted during project construction. Implementation of Mitigation Measures AQ-1 and AQ-2 would further reduce emissions. Thus, construction related air emissions would be less than significant.

Localized Significance Thresholds

Based on the SCAQMD guidance on applying CalEEMod to LSTs, the project would disturb no more than five acres of land per day; therefore, the LST thresholds for five acres were utilized for the construction LST analysis. The closest sensitive receptors to the project site are residential uses adjacent to the north and east of the project site. These sensitive land uses may be potentially affected by air pollutant emissions generated during on-site construction activities. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. As the nearest sensitive uses are adjacent to the project site, the LST value for 25 meters was utilized, as this is the most conservative option the methodology allows. Additionally, as previously noted, demolition, grading, and paving at the project site would occur during 2012, and the 48 single-family residential units would be constructed and painted over the following two years. The development order and occupancy order of the on-site lots is unknown at this time; however, the LST values for 25 meters still apply to on-site units (sensitive receptors) that may be operational during the time of construction of other on-site units.

Table 5.6-6 shows the construction-related emissions for NO_X, CO, PM_{10}, and $PM_{2.5}$ compared to the LSTs for SRA 18, North Coastal Orange County. As shown in Table 5.6-6, construction emissions in 2012, 2013, and 2014 would not exceed the LSTs for SRA 18. Therefore, localized significance impacts would be less than significant.

Table 5.6-6
Summary of Localized Significance of Construction Emissions

Phase	Localized Significance Threshold (lbs/day)			
	CO	NO_X	PM_{10}	$PM_{2.5}$
2012				
Mitigated On-Site Emissions	40.50	79.98	6.40	5.15
Localized Significance Threshold	*1,711*	*197*	*14*	*9*
Exceed Significance?	*No*	*No*	*No*	*No*
2013				
Mitigated On-Site Emissions	16.52	23.18	1.60	1.60
Localized Significance Threshold	*1,711*	*197*	*14*	*9*
Exceed Significance?	*No*	*No*	*No*	*No*
2014				
Mitigated On-Site Emissions	16.17	21.64	1.44	1.44
Localized Significance Threshold	*1,711*	*197*	*14*	*9*
Exceed Significance?	*No*	*No*	*No*	*No*

CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns

Conclusion

In conclusion, although the unmitigated PM levels during construction are below the SCAQMD thresholds in the absence of specific dust reduction measures, Mitigation Measures AQ-1 and AQ-2 have been recommended as the Basin is in nonattainment for PM_{10} and $PM_{2.5}$. All other criteria

pollutant emissions would also be below the SCAQMD thresholds. In addition, emissions from construction activities would not exceed LSTs for SRA 18. Therefore, regional and localized air quality impacts would be less than significant.

Mitigation Measures:

AQ-1 Prior to issuance of any Grading Permit, the Director of Public Works and the Building Official shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, in compliance with SCAQMD Rule 403, excessive fugitive dust emissions shall be controlled by regular watering or other dust prevention measures, as specified in the SCAQMD's Rules and Regulations. In addition, SCAQMD Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Implementation of the following measures would reduce short-term fugitive dust impacts on nearby sensitive receptors:

- All active portions of the construction site shall be watered at least twice daily to prevent excessive amounts of dust;
- On-site vehicle speed shall be limited to 15 miles per hour;
- All on-site roads shall be paved where feasible, watered as needed (to maintain a moisture content of 12 percent), or chemically stabilized;
- Visible dust beyond the property line which emanates from the project shall be prevented to the maximum extent feasible;
- All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust prior to departing the job site;
- Track-out devices shall be used at all construction site access points;
- All delivery truck tires shall be watered down and/or scraped down prior to departing the job site;
- Replace ground cover on disturbed areas quickly; and
- Implement street sweeping program with Rule 1186-compliant PM_{10} efficient vacuum units.

AQ-2 All trucks that are to haul excavated or graded material on-site shall comply with State Vehicle Code Section 23114 (Spilling Loads on Highways), with special attention to Sections 23114(b)(F) and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads. Prior to the issuance of grading permits, the Applicant shall coordinate with the appropriate City of Seal Beach Engineer on hauling activities compliance.

Level of Significance: Less Than Significant With Mitigation Incorporated.

LONG-TERM (OPERATIONAL) AIR EMISSIONS

AQ-2 DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT WOULD NOT RESULT IN SIGNIFICANT IMPACTS PERTAINING TO OPERATIONAL AIR EMISSIONS.

Impact Analysis: Operational emissions generated by both stationary and mobile sources would result from normal daily activities on the project site after occupation (i.e., increased concentrations

of O_3, PM_{10}, and CO). Stationary area source emissions would be generated by the consumption of natural gas for space and water heating devices, the operation of landscape maintenance equipment, and the use of consumer products. Stationary energy emissions would result from energy consumption associated with the proposed project. Mobile emissions would be generated by the motor vehicles traveling to and from the project site. Emissions associated with each of these sources were calculated and are discussed below.

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

As previously discussed, the Basin is a nonattainment area for Federal and State air quality standards for PM_{10}, $PM_{2.5}$, and O_3. NO_X and ROG are regulated O_3 precursors. A precursor is defined as a directly emitted air contaminant that, when released into the atmosphere, forms or causes to be formed, or contributes to the formation of, a secondary air contaminant for which an ambient air quality standard has been adopted. Project-generated vehicle emissions have been estimated using the CalEEMod model. This model predicts ROG, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ emissions from motor vehicle traffic associated with new or modified land uses; refer to Appendix 11.6, *Air Quality/Greenhouse Gas Emissions Data*, for model input values used for this project.

Project-generated vehicle emissions have been estimated using the CalEEMod model. This model predicts emissions from motor vehicle traffic associated with new or modified land uses; refer to Appendix 11.6. According to the project's *Traffic Impact Analysis*, the proposed project would generate 561 daily trips. Table 5.6-7, *Long-Term Operational Air Emissions* presents the anticipated mobile source emissions. As shown in Table 5.6-7, unmitigated emissions generated by vehicle traffic associated with the proposed project would not exceed established SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Therefore, impacts from vehicle emissions would be less than significant.

Stationary Source Emissions

Stationary source emissions would be generated due to an increased demand for electrical energy and natural gas with the development of the proposed project. This assumption is based on the supposition that those power plants supplying electricity to the site are utilizing fossil fuels. Electric power generating plants are distributed throughout the Basin and western United States, and their emissions contribute to the total regional pollutant burden. The primary use of natural gas by the proposed land uses would be for combustion to produce space heating, water heating, other miscellaneous heating, or air conditioning, consumer products, and landscaping. As indicated in Table 5.6.-7, unmitigated stationary source emissions from the proposed project would not exceed SCAQMD thresholds. The project also proposes to install energy efficient appliances, low-flow fixtures, and irrigation systems, which would further reduce criteria pollutant emissions. Thus, impacts from area source emissions would be less than significant.

Table 5.6-7
Long-Term Operational Air Emissions

Emissions Source	Pollutant (pounds/day)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Unmitigated						
Area Source Emissions[2]	7.14	0.28	19.97	0.04	2.56	2.56
Energy Emissions	0.06	0.51	0.22	0.00	0.04	0.04
Mobile Emissions	2.79	6.77	25.76	0.05	5.49	0.32
Total Emissions	*9.99*	*7.56*	*45.95*	*0.09*	*8.09*	*2.92*
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Is Threshold Exceeded? (Significant Impact?)	*No*	*No*	*No*	*No*	*No*	*No*
Mitigated						
Area Source Emissions[2]	2.03	0.05	4.08	0.00	0.02	0.02
Energy Emissions	0.06	0.51	0.22	0.00	0.04	0.04
Mobile Emissions	2.71	6.51	24.89	0.04	5.21	0.31
Total Emissions	*4.80*	*7.07*	*29.19*	*0.04*	*5.27*	*0.37*
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Is Threshold Exceeded? (Significant Impact?)	*No*	*No*	*No*	*No*	*No*	*No*

Notes:
1. Based on CalEEMod modeling results, worst-case seasonal emissions for area and mobile emissions have been modeled.
2. Area Source excludes the use of fireplaces and wood burning stoves.

Localized Operational Emissions

Localized operational emissions represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable Federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area. It should be noted that localized operational emissions at the project site are only compared to area source emissions since the SCAQMD methodology does not account for mobile source emissions. Rather, performing a CO hotspots analysis assesses localized mobile source impacts. Emissions from project operations were estimated using the CalEEMod emissions model.

The SCAQMD provides the LST lookup tables for one, two, and five acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}, for receptors of 25, 51, 100, 200, and 500 meters from the source. For project operations, the conservative five-acre threshold was utilized, and the distance of 25 meters was used. As seen in Table 5.6-8, *Localized Significance of Emissions*, mitigated operational emissions are below the LSTs, and a less than significant impact would occur in this regard.

Table 5.6-8
Localized Significance of Operational Emissions

Source	Pollutant (pounds/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Operational				
Mitigated Stationary Source Emissions	0.56	4.30	0.06	0.06
Localized Significance Threshold	*197*	*1,711*	*4*	*2*
Thresholds Exceeded?	*No*	*No*	*No*	*No*

Note:
1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold was based on the total acreage for operational (conservatively uses the 5-acre threshold), the distance to sensitive receptors (25 meters), and the source receptor area (SRA 18).

Intersection Carbon Monoxide Hotspots

Carbon monoxide concentrations are a function of vehicle idling time, meteorological conditions and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (i.e., adversely affect residents, school children, hospital patients, the elderly, etc.). The SCAQMD requires a quantified assessment of CO hotspots when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service (LOS) D or worse. As traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersections. The six intersections studied within the *Traffic Impact Analysis* currently operate at LOS A, B, or C. Although none of the study intersections currently operate at LOS D or worse, one intersection is projected to operate at LOS D in the Year 2030 Cumulative Plus Project scenario. Therefore this intersection has been modeled; refer to Table 5.6-9, *Carbon Monoxide Levels*.

Table 5.6-9
Carbon Monoxide Levels

Intersection	1-Hour CO (ppm) [1]		8-Hour CO (ppm)	
	1-Hour Standard[2]	Future + Project	8-Hour Standard[3]	Future + Project
Pacific Coast Highway/Studebaker Road	20 ppm	3.40	9 ppm	2.91

Notes:
1. As measured at a distance of 10 feet from the corner of the intersection predicting the highest value. Presented 1-hour CO concentrations include a background concentration of 3.00 ppm. Eight-hour concentrations are based on a persistence of 0.86 of the 1-hour concentration.
2. The State 1-hour standard is 20 ppm. The Federal standard is 35 ppm. The most stringent standard is reflected in the Table.
3. The State 8-hour and Federal 8-hour standard is 9 ppm.

The projected traffic volumes were modeled using the BREEZE ROADS dispersion model. The resultant values were then added to an ambient concentration. A receptor height of 1.8 meters was used in accordance with the EPA's recommendations. The calculations assume a meteorological condition of almost no wind (0.5 meters/second), a flat topological condition between the source and the receptor and a mixing height of 1,000 meters. A standard deviation of five degrees was used for the deviation of wind direction. The suburban land classification was used for the aerodynamic roughness coefficient. This follows the BREEZE ROADS user's manual definition of suburban as "regular coverage with large obstacles, open spaces roughly equal to obstacle heights, villages, mature forests." All of the above parameters are based on the standards stated in the *Transportation Project-Level Carbon Monoxide* (CO Protocol), December 1997.

For the purposes of this analysis, the ambient concentration used in the modeling was the highest one-hour measurement from the past year of SCAQMD monitoring data at the Costa Mesa Monitoring Station. Actual future ambient CO levels may be lower due to emissions control strategies that would be implemented between now and the project buildout date. Due to changing meteorological conditions over an eight-hour period which diffuses the local CO concentrations, the eight-hour CO level concentrations have been found to be typically proportional and lower than the one-hour concentrations, where it is possible to have stable atmospheric conditions last for the entire hour. Therefore, eight-hour CO levels were calculated using the locally derived persistence factor as stated in the CO Protocol. The local persistence factor is derived by calculating the highest ratio of eight-hour to one-hour maximum locally measured CO concentrations from the most recent three years of data. Table 5.6-1 shows that of the most recent three years of data, year 2010 has the highest eight-hour to one-hour ratio of 0.86.

As indicated in Table 5.6-9, CO concentrations would be well below the State and Federal standards. The modeling results are compared to the CAAQS for CO of 9 ppm on an 8-hour average and 20 ppm on a 1-hour average. Neither the 1-hour average nor the 8-hour average would be equaled or exceeded. Impacts in regards to CO hot spots would be less than significant.

Conclusion

In conclusion, as shown in Table 5.6-7, the proposed project would not exceed the SCAQMD's regional emissions or LST thresholds. Additionally, the project would not result in CO hotspots at any of the study intersections. Implementation of project design features which require standard energy and water efficiency measures would further reduce operational emissions. A less than significant impact would occur with regards to operational air emissions.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

CONSISTENCY WITH REGIONAL PLANS

AQ-3 DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT WOULD BE CONSISTENT WITH REGIONAL PLANS.

Impact Analysis: An EIR must discuss any inconsistencies between the proposed project and applicable General Plans and regional plans (*CEQA Guidelines* Section 15125). Regional plans that apply to the proposed project include the 2007 AQMP. In this regard, this section discusses any inconsistencies between the proposed project and the 2007 AQMP.

The purpose of the consistency discussion is to set forth the issues regarding consistency with the assumptions and objectives of the 2007 AQMP and discuss whether the project would interfere with the region's ability to comply with Federal and State air quality standards. If a project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD's *CEQA Handbook* states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the plan if it furthers one or more policies and does not obstruct other policies. The *CEQA Handbook* identifies two key indicators of consistency criteria:

(1) Whether the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project would exceed the assumptions in the AQMP in 2030 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated below:

Criterion 1: Would the Project Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this section, there would not be significant localized short-term construction or long-term operational impacts due to the project based on the SCAQMD thresholds of significance. Emissions generated during construction and operation would not exceed SCAQMD's LST criteria, and therefore, it is unlikely that development of the project would increase the frequency or severity of existing air quality violations in the immediate vicinity of the project. Further, the project is not projected to result in any exceedances due to traffic volume increases at nearby intersections. The LST analysis demonstrates that the project would not cause a localized exceedance of the NO_2 standard. Therefore, the proposed project is not projected to contribute to the exceedance of any air pollutant concentration standards. Thus, the project is found to be consistent with the AQMP for the first criterion.

Criterion 2: Would the Project Exceed Assumptions in the AQMP?

The emphasis of this criterion is to insure that the analyses conducted for the project are based on the same forecasts as the 2007 AQMP. SCAG's *Final Regional Comprehensive Plan*, dated 2008 (2008 RCP), consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the Core Chapters of the document. These chapters currently respond directly to Federal and State requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA.

Because the SCAG forecasts are not detailed, the test for consistency of this project is not specific. The 1996 DWP Specific Plan, which is the current land use plan for the site, designates the land south of Central Way as Public Open Space/Parkland with the balance of the site designated as Visitor Serving Uses, with a 150-room hotel and related uses. Implementation of the proposed project would change the site designation in order to allow for the development of residential and park/open space uses. As discussed in Section 5.1, *Land Use and Relevant Planning*, the project would be consistent with the General Plan upon the approval of a Land Use Element Amendment, and Open Space/Recreation and Conservation Element Amendment. Section 5.1 also concludes that the project is not considered regionally significant by SCAG. The proposed project would result in less growth than that allowed by the 1996 DWP Specific Plan. Therefore, the project would not increase the amount of growth assumed in the 2007 AQMP. Therefore, the second criterion is met for consistency with the 2007 AQMP.

As described above, the proposed project would be consistent with the 2007 AQMP as it would satisfy the two key indicators of consistency identified by the SCAQMD's *CEQA Handbook*. The proposed project would not contribute to the exceedance of an air pollutant concentration standard, as its localized impacts would be below significance thresholds. Additionally, the project would not induce growth beyond what was assumed in the 2007 AQMP. Therefore, the project would be consistent with the assumptions in the 2007 AQMP. As a result, the proposed project would be consistent with the 2007 AQMP and impacts would be less than significant.

Mitigation Measures: Refer to Mitigation Measures AQ-1 and AQ-2.

Level of Significance: Less Than Significant With Mitigation Incorporated.

5.6.5 CUMULATIVE IMPACTS

The basis for cumulative analysis is presented in Section 4.0, *Basis of Cumulative Analysis*. Cumulative projects identified as having the potential to interact with the proposed project to the extent that a significant cumulative effect could occur include the:

- Fresh 'n Easy Project;
- Marina Park Development;
- River's End Staging Area and San Gabriel River Bikeway Enhancement Plan; and
- 2nd Street and Pacific Coast Highway Project.

The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

SHORT-TERM (CONSTRUCTION) AIR EMISSIONS

- **SHORT-TERM CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROPOSED PROJECT COULD RESULT IN AIR POLLUTANT EMISSION IMPACTS OR EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS.**

Impact Analysis: The SCAQMD neither recommends quantified analyses of cumulative construction emissions, nor does it provide separate methodologies or thresholds of significance to be used to assess cumulative construction impacts. The SCAQMD significance thresholds for construction are intended to meet the objectives of the AQMP to ensure the Federal and California AAQS are not exceeded. As the project Applicant has no control over the timing or sequencing of the related projects, any quantitative analysis to ascertain the daily construction emissions that assumes multiple, concurrent construction would be speculative. However, the Marina Park Development would be the project that would cumulatively contribute most to short-term air quality impacts in the area due to the proximity to the project site. The Marina Park Development is anticipated to begin construction in 2014 at the earliest. The proposed project anticipates that 24 homes would be constructed and painted in 2014. Therefore, construction activities would likely overlap by one year in a worst case scenario. The year of overlap would be the proposed project's final and lowest year of construction emissions. Construction-related criteria pollutant emissions are temporary in nature and cease following project completion. Project compliance with SCAQMD rules and regulations and Mitigation Measures AQ-1 and AQ-2 would reduce construction-related impacts to less than significant levels. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects throughout the Basin, which would include each of the related projects listed in Section 4.0, *Basis of Cumulative Analysis*. Therefore, as cumulative projects would be required to reduce their emissions per SCAQMD rules and mandates, cumulative construction emissions would not contribute to an exceedance of the Federal or California AAQS and would, therefore, comply with the goals of the 2007 AQMP. Thus, it can be reasonably inferred that the project-related construction activities, in combination with those from other projects in the area, would not deteriorate the local air quality and would not result in cumulative construction-related impacts.

***Mitigation Measures*:** Refer to Mitigation Measures AQ-1 and AQ-2.

Level of Significance: Less Than Significant With Mitigation Incorporated.

LONG-TERM (OPERATIONAL) AIR EMISSIONS

- **DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT WOULD NOT RESULT IN SIGNIFICANT IMPACTS PERTAINING TO OPERATIONAL AIR EMISSIONS.**

The SCAQMD has set forth both a methodological framework as well as significance thresholds for the assessment of a project's cumulative operational air quality impacts. The SCAQMD's approach for assessing cumulative impacts is based on the SCAQMD's AQMP forecasts of attainment of AAQS in accordance with the requirements of the Federal and State CAAs. This forecast also takes into account SCAG's AQMP forecasted future regional growth. As such, the analysis of cumulative impacts focuses on determining whether the proposed project is consistent with the growth assumptions upon which the SCAQMD's AQMP is based. If the project is consistent with the growth assumptions, then future development would not impede the attainment of AAQS and a significant cumulative air quality impact would not occur.

Based on the SCAQMD's methodology, a project would have a significant cumulative air quality impact if the project's contribution to vehicle miles traveled (VMT) growth exceeds its contribution to population growth in the region. This is determined by comparing the following two ratios:

- The ratio of daily project-related VMT to daily countywide VMT; and
- The ratio of project-related population growth to countywide population growth.

As shown in Table 5.6-10, *Project Cumulative Air Quality Impacts*, the project's VMT ratio does not exceed the population ratio. Based on these criteria, development of the proposed project would have a less than significant impact in this regard. In addition, as shown in Table 5.6-9, a localized CO impact analysis was conducted for cumulative traffic. As indicated, no local CO violations would occur at any of the studied intersections. As such, the mass regional emissions that would occur as a result of the proposed project would not be cumulatively considerable.

Table 5.6-10
Project Cumulative Air Quality Impacts

Cumulative Air Quality Criteria	VMT, Population, and Cumulative Ratios
Daily Vehicle Miles Traveled for Project Population[1]	3,673
Daily Vehicle Miles Traveled Countywide[2]	82,529,000
Daily Vehicle Miles Traveled Ratio	*0.00004*
Project Related Population Increase[3]	89
Countywide Population Increase[3]	433,698
Population Ratio	*0.00021*
Significance Test (Daily Vehicle Miles Traveled Ratio Greater Than Population Ratio)	No
VMT = Vehicle Miles Traveled	
Notes: 1 – Increase of VMT based on the *Ocean Place Residential Project Traffic Impact Analysis,* prepared by Linscott, Law & Greenspan Engineers, dated October 27, 2011, and CalEEMod outputs (refer to Appendix 11.6, *Air Quality/Greenhouse Gas Emissions Data*). 2 – Data obtained from EMFAC 2007. 3 – Refer to Section 5.12, *Population and Housing*.	

***Mitigation Measures*:** No mitigation measures are required

Level of Significance: Less Than Significant With Mitigation Incorporated.

CONSISTENCY WITH REGIONAL PLANS

- **DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT WOULD BE CONSISTENT WITH REGIONAL PLANS.**

The City is subject to the SCAQMD's 2007 AQMP. Additionally, the City is located within the Orange County subregion of the SCAG 2008 RCP, which governs population growth. The General Plan is consistent with the 2008 RCP, and since the 2008 RCP is consistent with the 2007 AQMP, growth under the General Plan is consistent with the 2007 AQMP. The 1996 DWP Specific Plan, which is the current land use plan for the site, designates the land south of Central Way as Public Open Space/Parkland with the balance of the site designated as Visitor Serving Uses, with a 150-room hotel and related uses. Implementation of the proposed project would change the site designation in order to allow for the development of residential and park/open space uses. The proposed project would result in less growth than that allowed by the 1996 DWP Specific Plan. Therefore, the project would not increase the amount of growth assumed in the 2007 AQMP. Thus, development in the City would not conflict or obstruct the 2007 AQMP. Also, as the proposed project would be consistent with the 2007 AQMP (refer to the discussion above), the project would not cumulatively contribute to impacts in this regard.

***Mitigation Measures*:** No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

5.6.6 SIGNIFICANT UNAVOIDABLE IMPACTS

No unavoidable significant impacts related to air quality have been identified in this section.